



CD-doc-NNN-GCCautosshutdown.doc
GCC Automatic Shutdown Requirements

David J. Ritchie
Operations, Computing Division

November 29, 2004

Introduction

The purpose of this document is to describe the requirements for a hardware/software system that will cause the automatic shutdown of the computational PC's residing in GCC in the event of a problem with the GCC computing room environment.

Background

GCC, the Grid Computing Center, occupying the building formerly known as "Wideband," will house a large number of PCs (up to 2800) that will perform high energy physics computations. The computational PCs will be connected to the laboratory network as a number (~5) of subnets. The PCs are powered via a 1000 KVA UPS system which is connected to the laboratory power.

Cooling is provided through a number (~8) of Liebert Computing Room Air Conditioners (CRACs). The CRACs are not powered through the UPS but directly through the usual laboratory power.

The purpose of the UPS, in addition to smoothing out power glitches, is to make possible the controlled shutdown of the computational PCs in the event of a problem maintaining the computing room environment, such as the failure of laboratory power, GCC air conditioning, etc.

The 1000 KVA capacity of the UPS through the discharge of its storage batteries makes it possible for a fully populated GCC (i.e., 2800 PCs) to have power for a maximum of 13 minutes. A lesser number of PCs will have a proportionally longer time of power availability (e.g., ~110 minutes in the case of 320 PCs). It is not a goal to provide power for this maximum time interval, however. The goal is that the computational PCs, once alerted, will shutdown their computational activities within 2 minutes. The UPS will shutdown a few minutes (~5?) later.

